

## Homemade Tractor Steps Improve Accessibility

Les Adelman of Rice, Minn., modified the steps of his daughter's Deere 2510 tractor to make for easier, safer access. "I made them narrower because there wasn't a lot of room between the frame and the tire," he says.

Adelman sourced the steps from a Deere combine at the dump. "It took a lot of time browsing around to find the right pieces, but a dump fee is surely cheaper than paying for an ironworker and blacksmith."

The first step is 16 in. off the ground, and the handrail on the side makes them act more like stairs than a ladder.

"I'm 89 years old, so I don't work fast," says Adelman. "This was the kind of project that you start, then look at another way in your mind, then try again."

"I only had so much room between the loader frame and tire to get it to fit. A blacksmith could have gotten it done much more quickly."

Originally, the 6-in. frame was on the tractor frame under the deck, a pretty good stretch for Adelman. "When you get to my age, it becomes impossible," he chuckles. "The handrail I added makes a world of difference as you get older."

Rice is pleased with the result, sharing that it's far superior to the steps that come from the factory. "My advice? Don't be in a hurry to get this kind of project done." He says,



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"Shortcuts aren't worth it."

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## Slick Adapter To Move Garbage Bins

Nicholas Streenz wanted to make it easier for his grandpa to move a full wheeled garbage container to the end of his driveway, so he built a lifting tool that mounts to the 3-pt. hitch of a tractor. Streenz works as a welder and metal fabricator, job experience that allowed him to fabricate the handy device and weld it together in less than an hour.

The base of the lifter is a large piece of angle iron that bolts to the horizontal drawbar on the tractor. He welded two vertical uprights made of 1 1/2-in. wide channel iron to the support bar and connected them on top with a large metal pin. Two U-shaped metal hooks are welded onto a metal plate welded to the uprights.

The channel iron brackets extend about 12-in. above the hooks and are held together at the top by a metal pin. The pin connects to the top link of the tractor's 3-pt. hitch.

When the 3-pt. hitch is raised, the U-shaped metal brackets grab the lift bar of the garbage container. Streenz says his grandpa acted like a little kid when he got to use it because now he has another chance to drive his tractor and doesn't have to walk the bins down



**Streenz built a handy 3-pt. attachment with two large hooks to carry garbage bins.**

his driveway.

Contact: FARM SHOW Followup, Nicholas Streenz, Saybrook, Ill.

kWh capacity and can be charged overnight with a 220/240 50-amp power service. The batteries deliver a consistent voltage for the duration of the charge with a run-time of up to 8 hrs. However, company data reveals that conventional skid steers are normally operating at idle for at least an hour out of every 8-hr. day.

"With our all-electric platform, energy isn't being used if the machine is idle," points out Honeyman. "Customers found they needed to recharge every 3 days or even once a week."

Honeyman points to the rapid development of fast-charging systems as eliminating recharge time constraints. "We're looking at different technologies that'll charge faster," he says. "When you can charge a vehicle as fast as you can fill the fuel tank, the world will change."

Charging, batteries, and other technologies used in the new all-electric loaders are already significantly better than when Doosan Bobcat built its prototype. Even then, the company was able to largely use off-the-shelf components.

"We built our prototype in just 60 days at the end of 2019," says Honeyman. "We proved it could be done and, since then, have been refining the concept."

The challenge was finding components rugged enough and reliable enough for agricultural conditions. What they found were technologies and applications that met those conditions and surpassed diesel/hydraulic operations.

"The technology allows us to know the position of every actuator precisely and current levels of operation," explains Honeyman. "If a component could damage

the machine, the intelligent control system backs off. That's not something you can do with hydraulics."

How soon will the machines be available to the marketplace? "The first machines have already been delivered to Sunbelt Rentals," says Honeyman.

"Today, the all-electric platform is more expensive than diesel/hydraulic," he adds, "but we're at a very low volume of production. As sales volume increases, we have a pathway to lower the cost. We're targeting to offset ownership costs in 5 years with lower operating costs."

Some all-electric platform components will certainly cross over to fueled machines. "We're looking at the use of actuators instead of hydraulic cylinders on our fueled units," says Honeyman. "The all-electric platform is a look at how the new technologies can be applied to the rest of our vehicle line-up."

Advanced Display Technology (ADT) is likely to catch on quickly and will be applied to fueled compact loaders, excavators, and telehandlers. It offers augmented reality with OLED touch screens integrated into front and/or side windows. Initially, it'll be attached, but eventually, it'll be embedded in the window.

The heads-up display allows operators to look at both the job site around them and operation information. The operators can access camera views and site maps on the window screens. The display can also be used for grading, elevation, and operator training.

Contact: FARM SHOW Followup, Doosan Bobcat (www.doosanbobcat.com).



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## All-Electric Skid Steer Out-Powers Diesel

By Jim Ruen, Contributing Editor

Doosan Bobcat's new all-electric compact loaders bring more power to the job and are faster, with simpler components, 50 percent fewer components, and 96 percent less fluid. It all adds up to superior performance with drastically reduced maintenance, zero emissions, less noise and vibration, and simpler troubleshooting.

If that wasn't enough, the operating costs of the track and wheel loaders are only a tenth that of diesel/hydraulic. The T7X track version was introduced in 2022, and the S7X was introduced in late 2023.

"The T7X and S7X with their ball screw actuators, electric drive motors, and other components are simply better," says Joel Honeyman, Doosan Bobcat North America. "The all-electric platform allows us to do many different things you can't do with a hydraulic machine. All-electric enhances performance and is sustainable."

The company understands that if a product doesn't perform as well or better

with more power and performance than the alternative, customers won't buy it. Products were tested out pre-introduction with select customers.

"The first thing customers notice is the instantaneous torque, up to three times greater than traditional skid-steer loaders," says Honeyman. "Our peak mode lets an operator go from 75 hp. to 107 hp. when driving into a pile."

He reports operators appreciate being able to simultaneously power drive, lift, and tilt functions without the power lag associated with diesel/hydraulic machines. At the same time, there's none of the noise and vibration common to diesel hydraulics.

What isn't limiting is the performance. The new machines, with their electric actuators, have a rated operating capacity of 2,900 lbs., tipping load of 8,429 lbs., breakout force-lift of 7,500 lbs., and breakout force-tilt of 8,108 lbs.

The lithium-ion batteries have a 72.6




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